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# The luminosities of backsplash galaxies in constrained simulations of the Local Group

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We study the differences and similarities in the luminosities of bound, infalling and the so-called backsplash (Gill et al. 2005) galaxies of the Milky Way and M31 using a hydrodynamical simulation performed within the Constrained Local Universe Simulation (CLUES) project. The simulation models the formation of the Local Group within a self-consistent cosmological framework. We find that even though backsplash galaxies passed through the virial radius of their host halo and hence may have lost a (significant) fraction of their mass, their stellar populations are hardly affected. This leaves us with comparable luminosity functions for infalling and backsplash galaxies and hence little hope to decipher their past (and different) formation and evolutionary histories by luminosity measurements alone. Nevertheless, due to the tidal stripping of dark matter we find that the mass-to-light ratios have changed when comparing the various populations against each other: they are highest for the infalling galaxies and lowest for the bound satellites with the backsplash galaxies in-between.

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